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United States Patent [19]

Palmer

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[54] **HYDRO-MASSAGE TABLE**

[76] Inventor: **Sidney C. Palmer**, 23001 137th Ave. N., Rogers, Minn. 55374

[21] Appl. No.: **533,739**

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,514,078.

[22] Filed: **Sep. 26, 1995**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 147,962, Nov. 4, 1993, Pat. No. 5,514,078.

[51] **Int. Cl.**[6] **A61H 7/00**

[52] **U.S. Cl.** **601/149**; 601/148

[58] **Field of Search** 239/20, 257, 251; 601/148–150, 154–158, 160

[56] **References Cited**

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1,746,575 2/1930 Barner 239/251

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267 797 10/1994 Australia 239/251

Primary Examiner—Danton D. DeMille
Attorney, Agent, or Firm—Janet Peyton Schafer

[57] **ABSTRACT**

A massage table having at least one jet-free, gear-free fluid distributor for use in a fluid-filled bladder of said massage table in which a nozzle, mounted for rotatable motion, directs the fluid in a first pulse in a generally upward direction, a curved blade fixedly attached and extending laterally from the nozzle, causes a second pulse to be introduced into the fluid. A temperature stabilizer is provided whereby fluid in the fluid-filled bladder of the massage table can be cooled dissipating heat generated by continuous action of a pump used to pressurize the fluid within the bladder. A S-shaped coupling, adapted for re-circulating fluid from said temperature stabilizer to said pump, is provided for eliminating need for a second pump. A massage table of two-piece construction, adapted for supporting a fluid-filled bladder, is provided for ease of economic transport of said massage table.

9 Claims, 6 Drawing Sheets

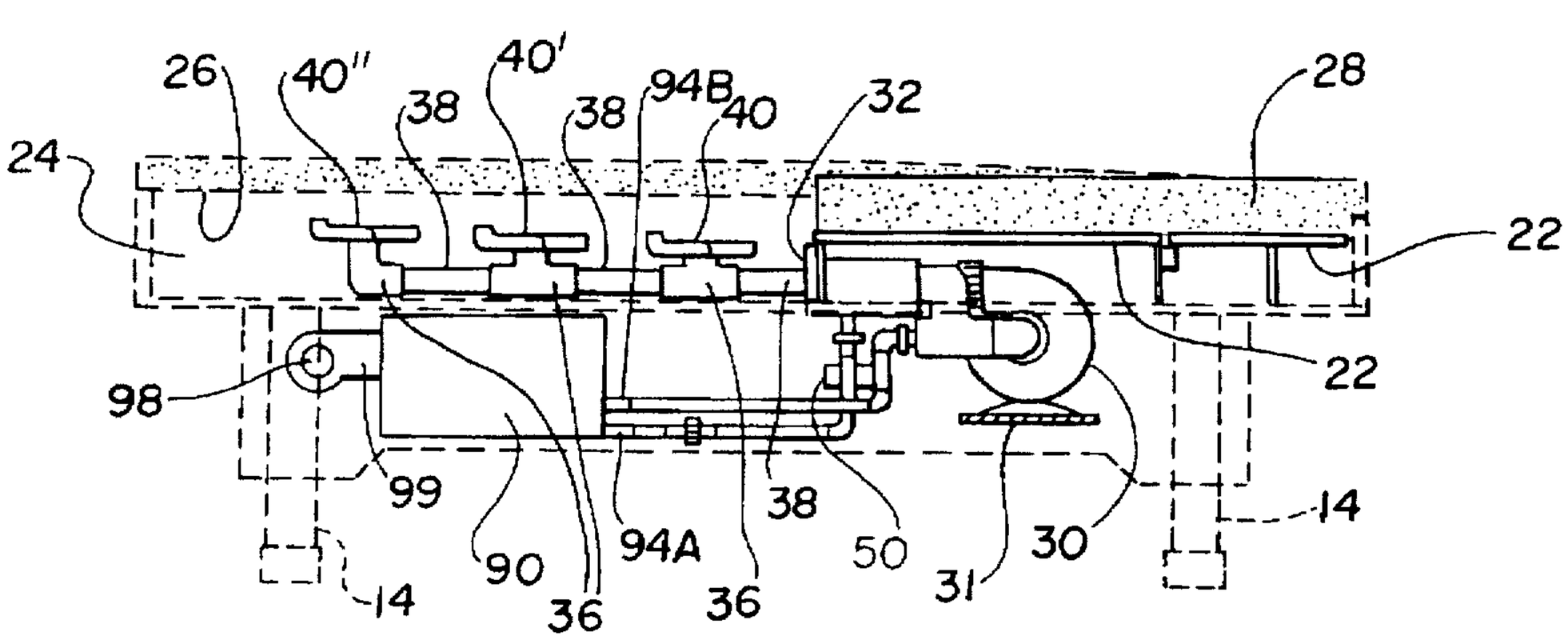


Fig. 1

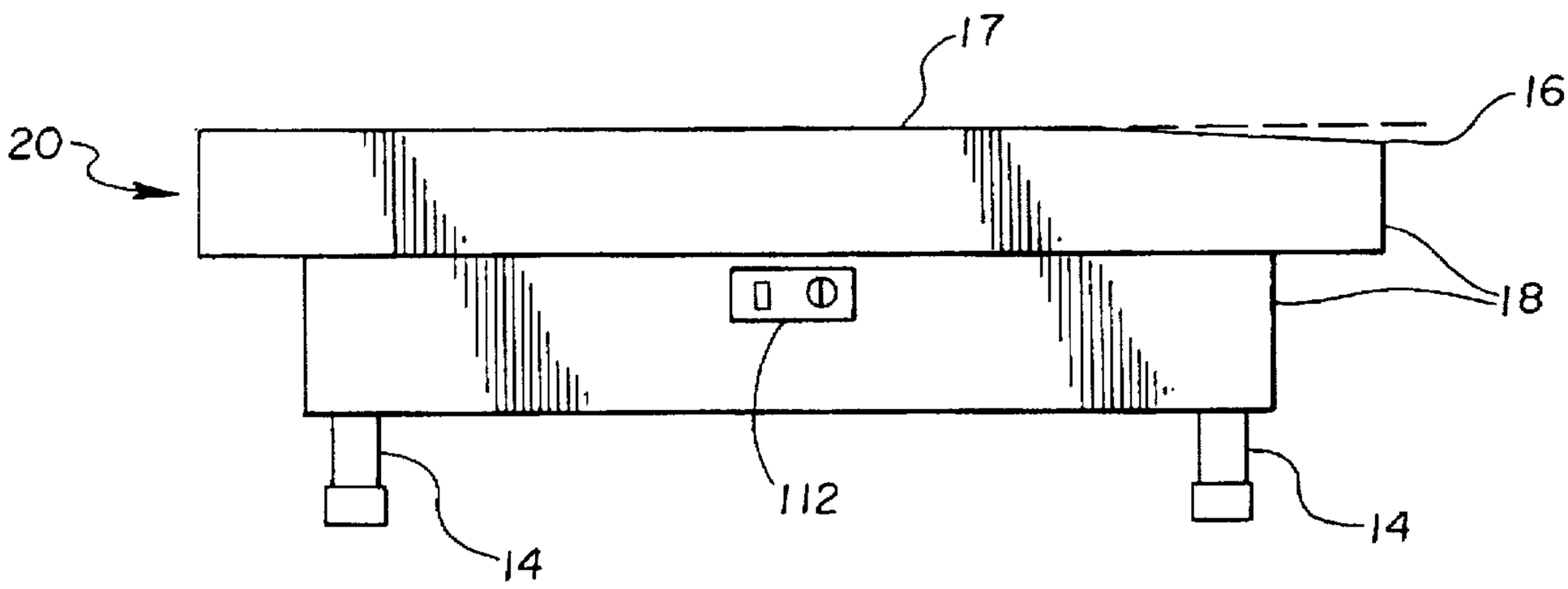


Fig. 2

Fig. 3

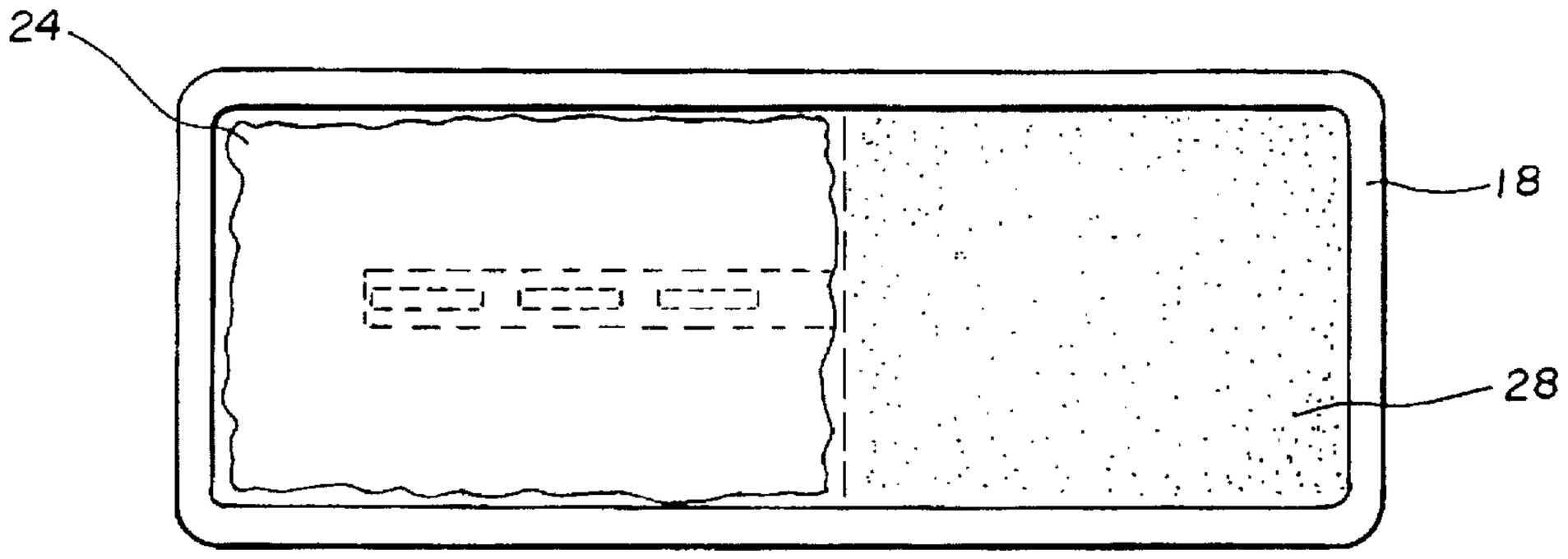


Fig. 4

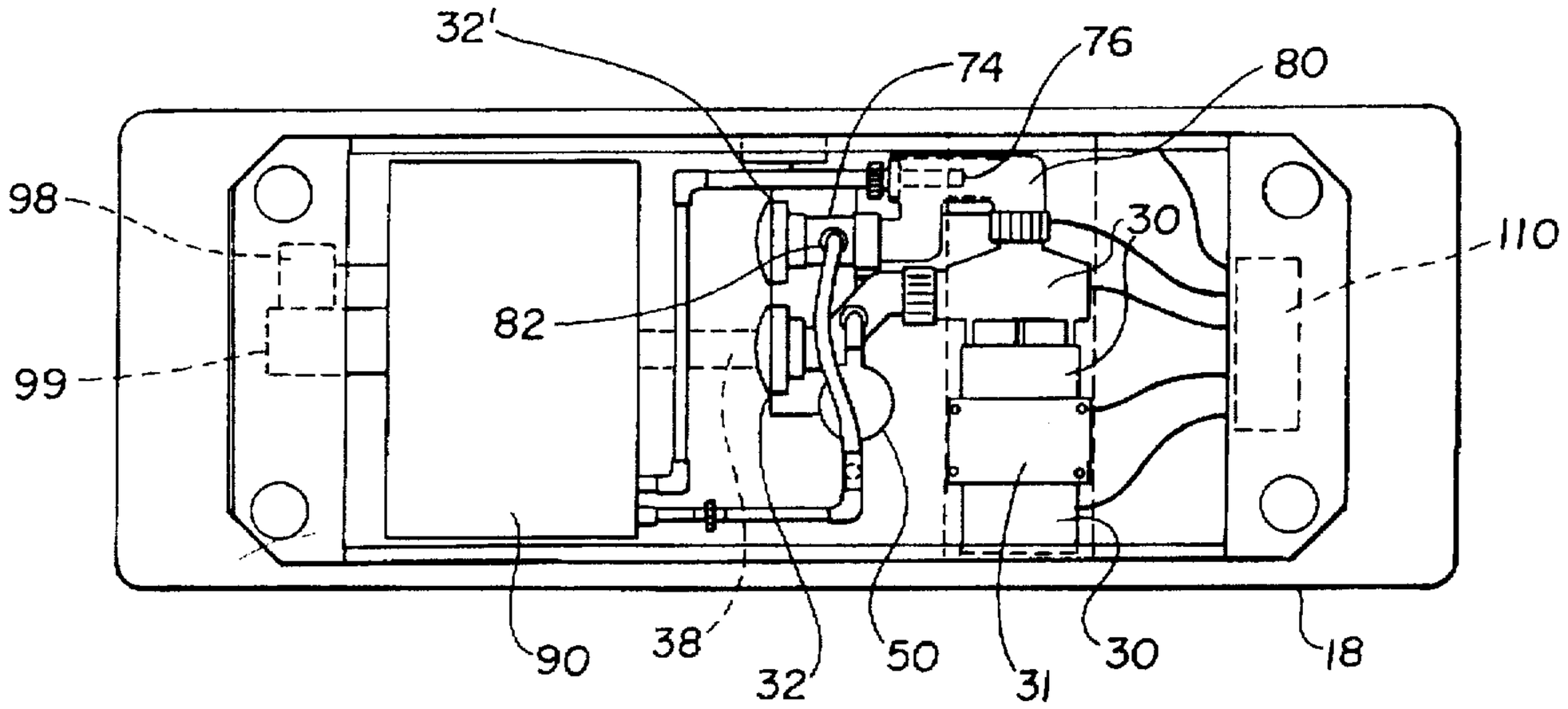
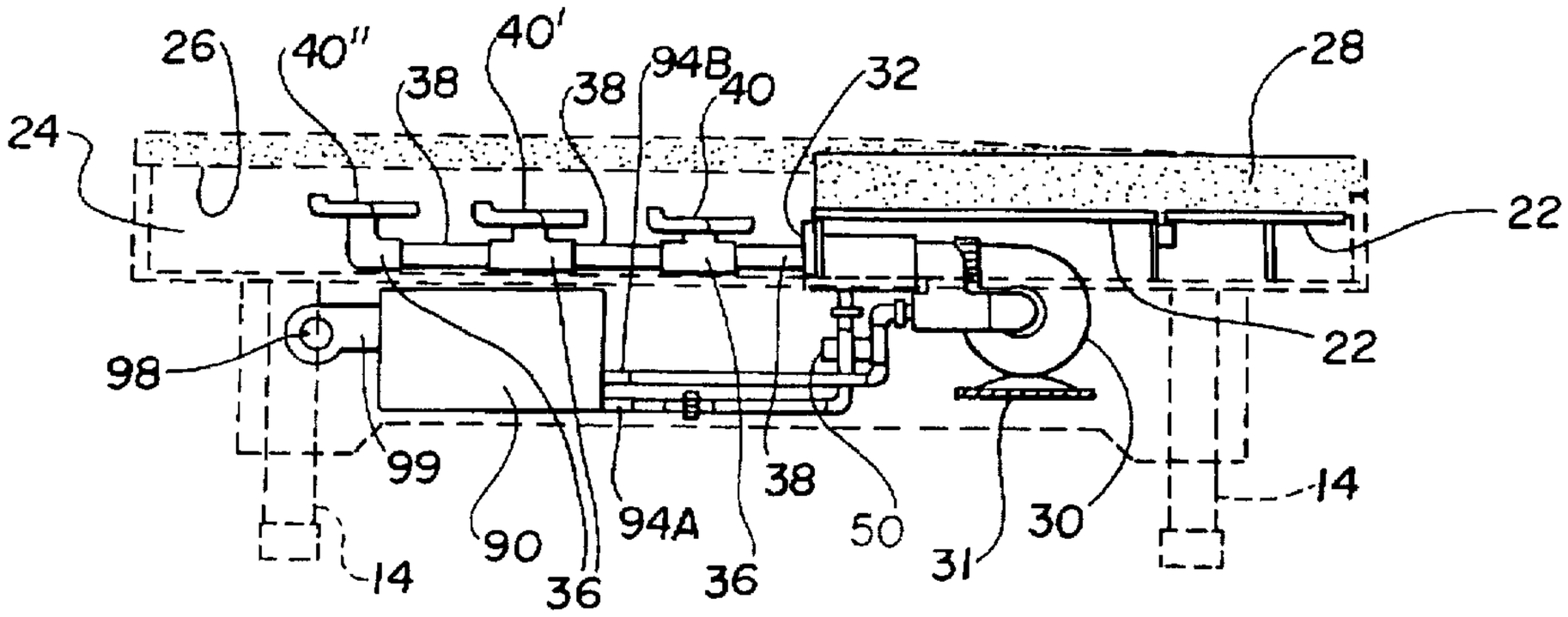

32'
74
76
80
98
30
110
82
99
90
38
32
50
31
30
18

Fig. 5


26
40''
40'
38
38
94B
40
32
28
24
22
22
98
99
38
14
90
94A
50
30
14
36
36
31
30

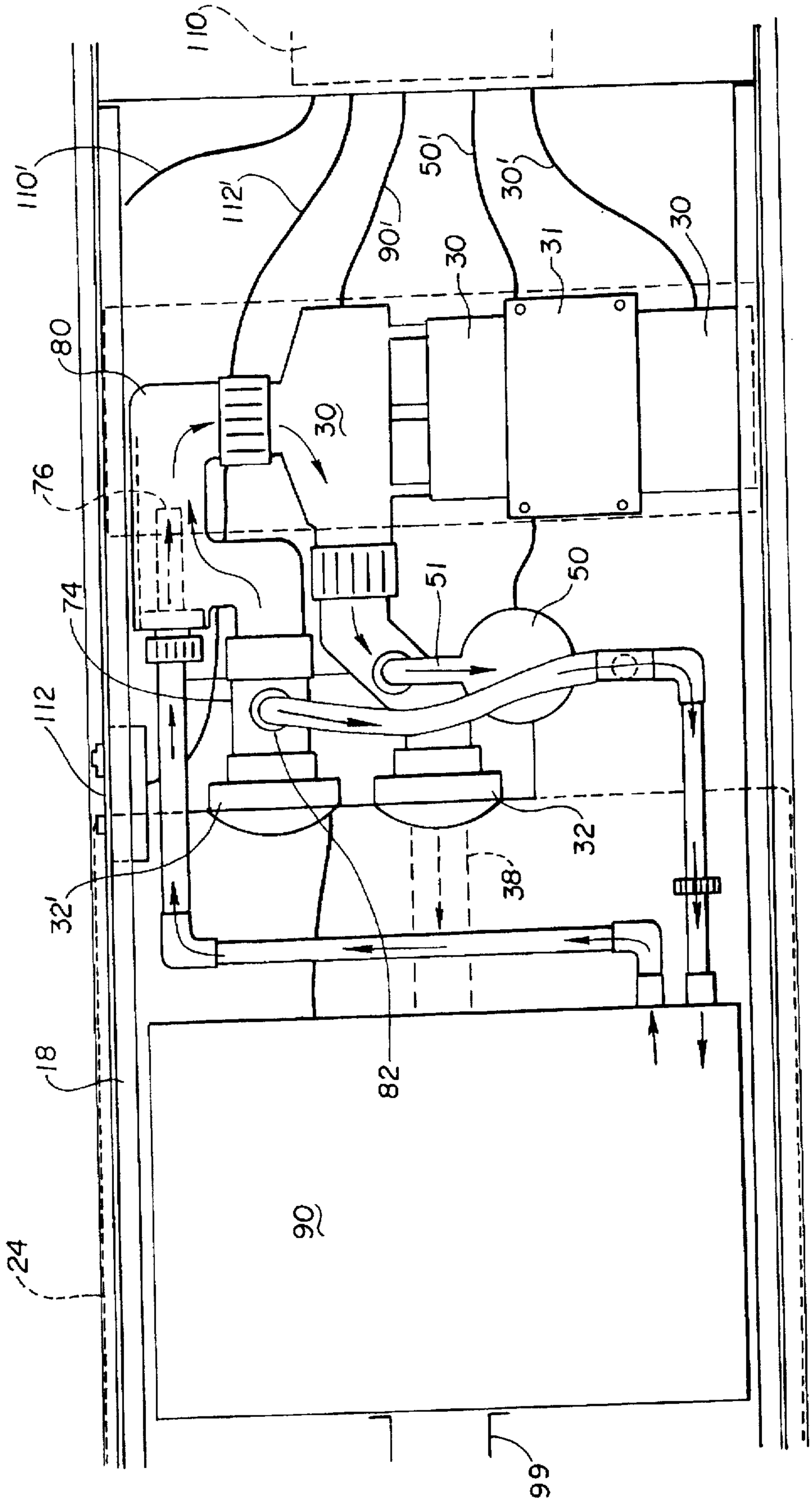

110
110'
112'
90'
50'
30'
30
31
80
30
76
74
51
50
112
32'
32
38'
18
82
90
24
99

Fig. 6

Fig. 7

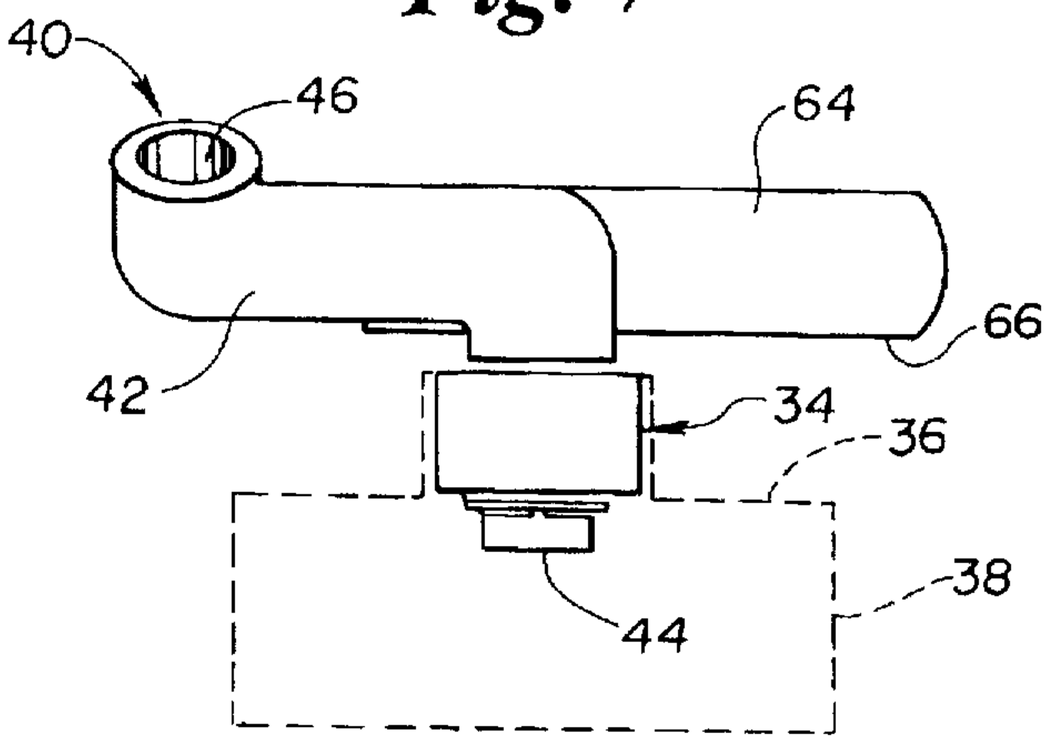


Fig. 8

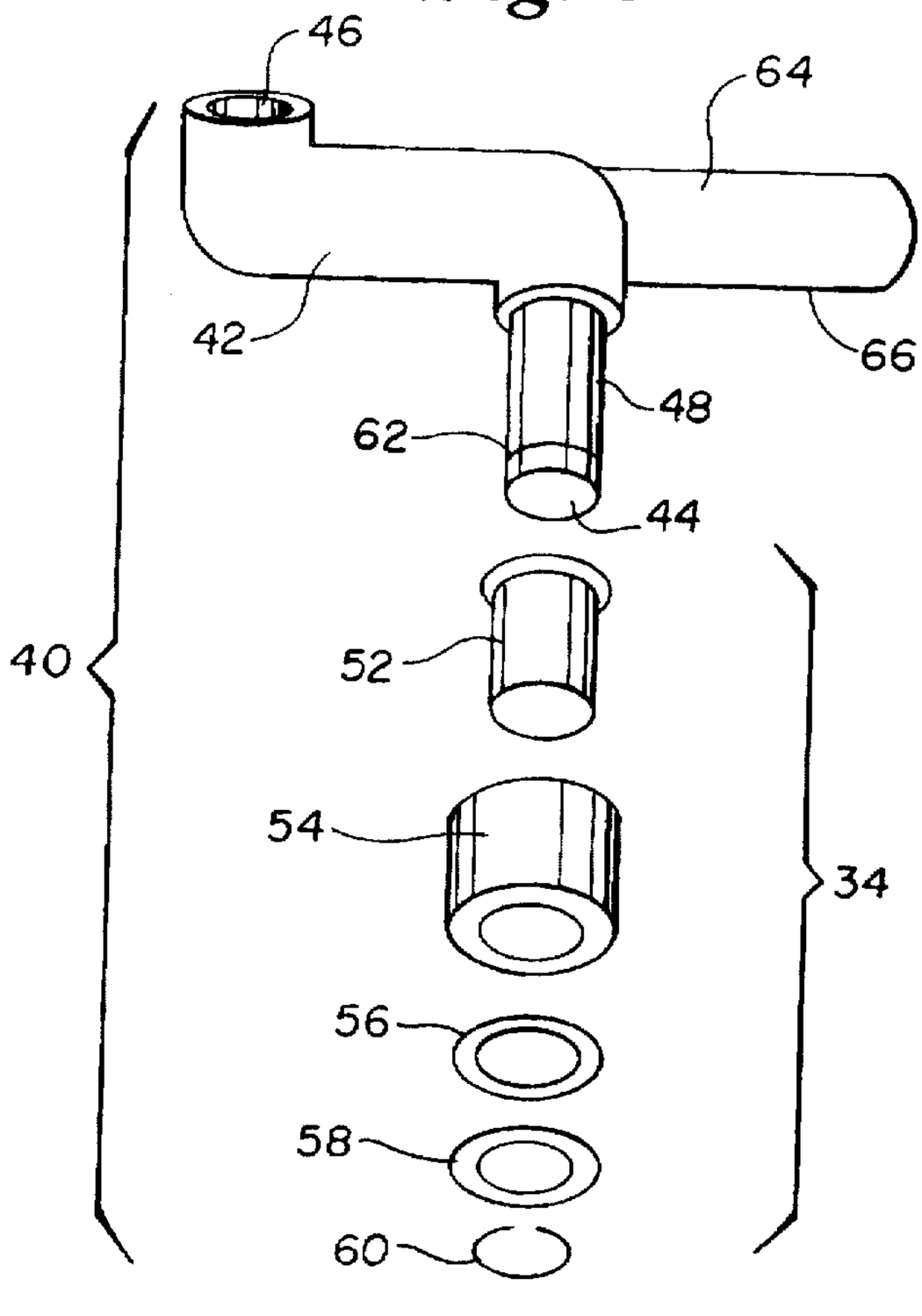


Fig. 9

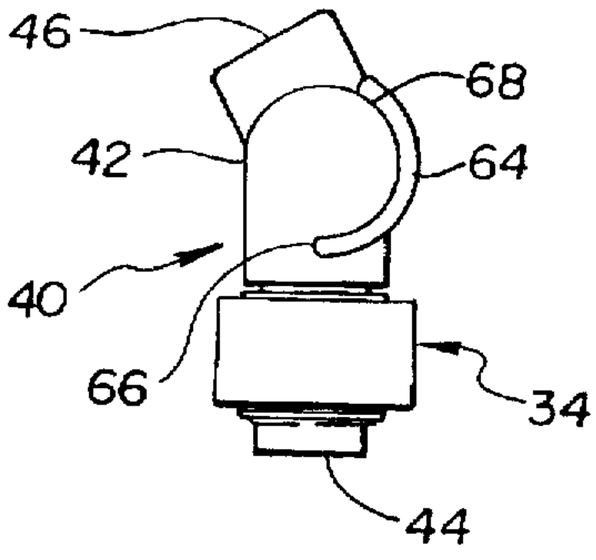


Fig. 11

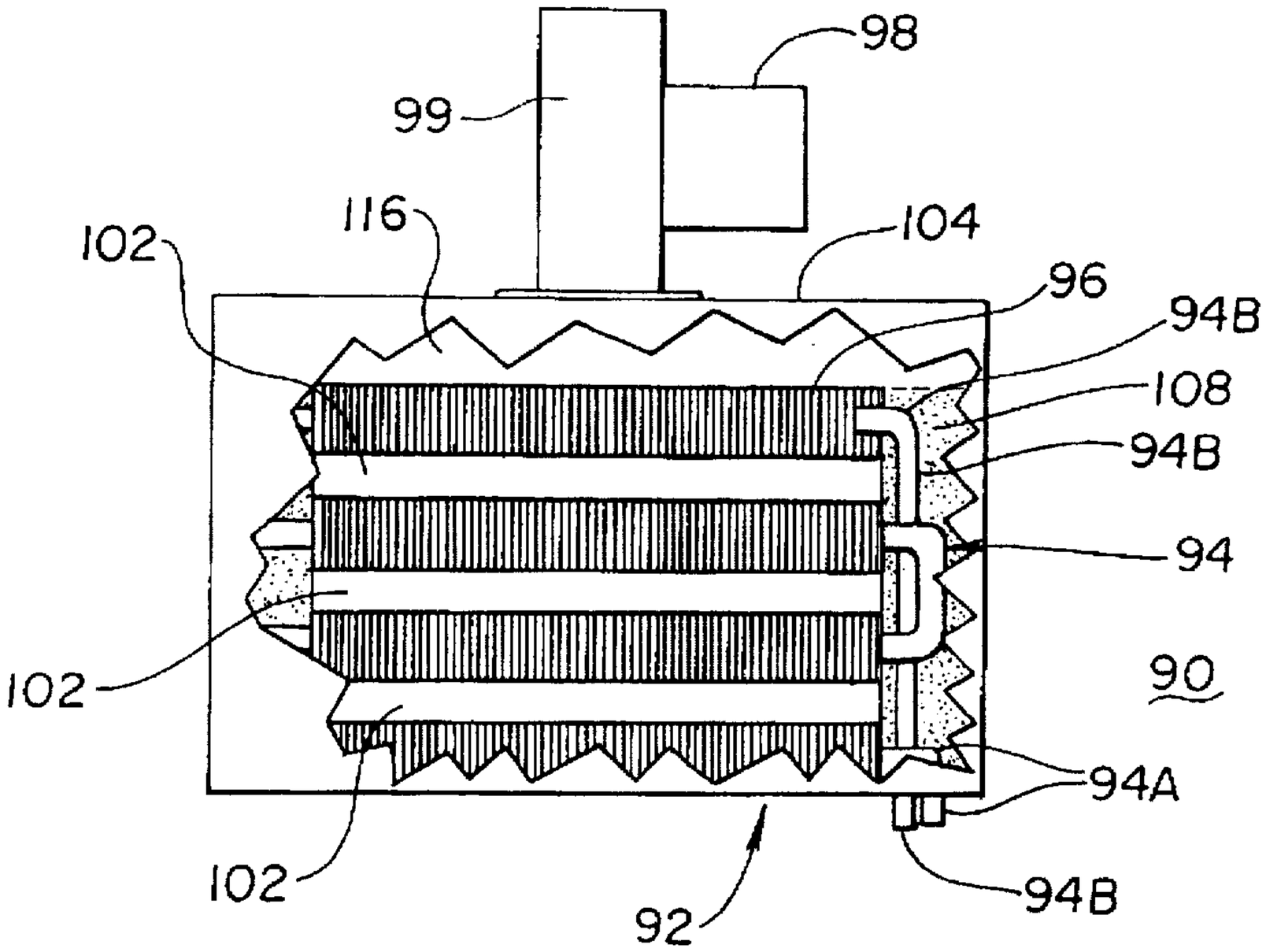

98
99
116
102
104
96
94B
108
94B
94
102
90
94A
102
92
94B

Fig. 10

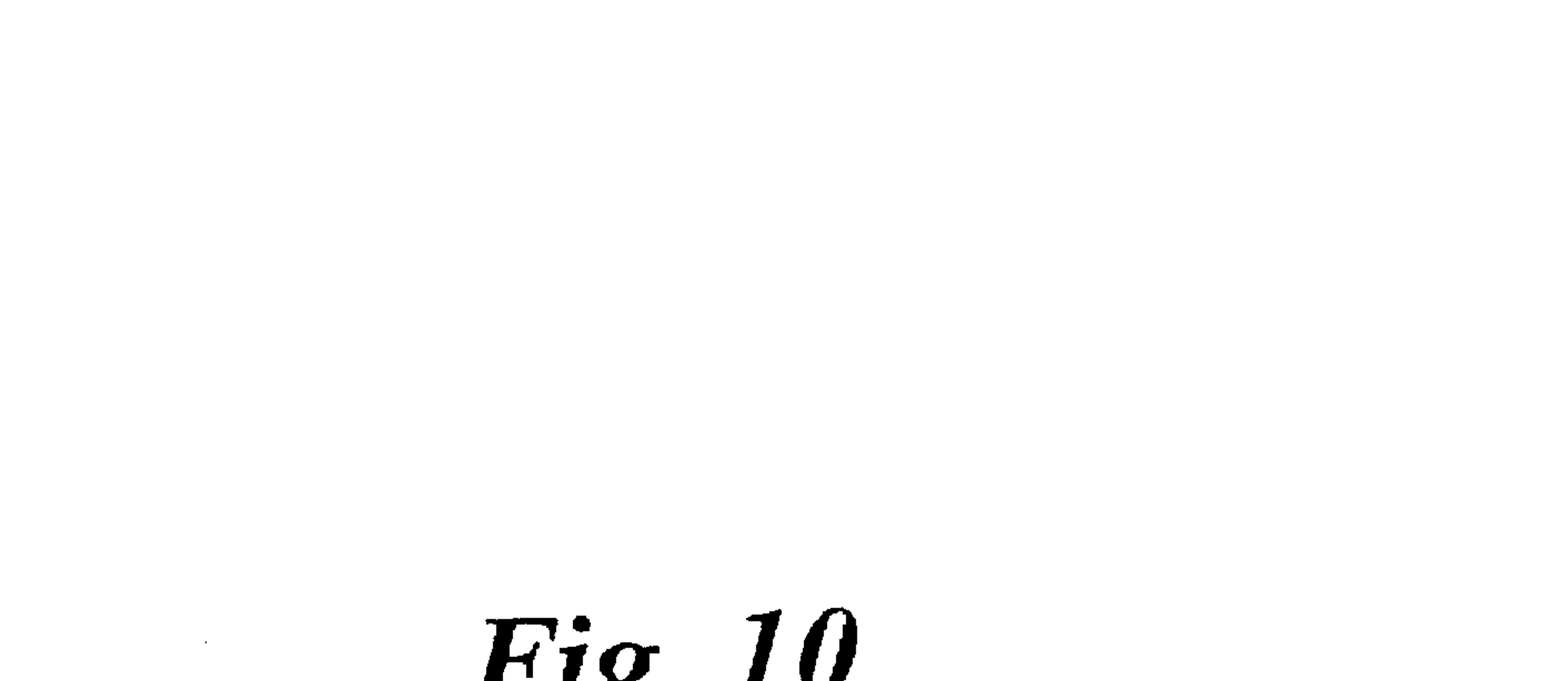

11
114
11
92
96
92'
92"
90
106

Fig.12

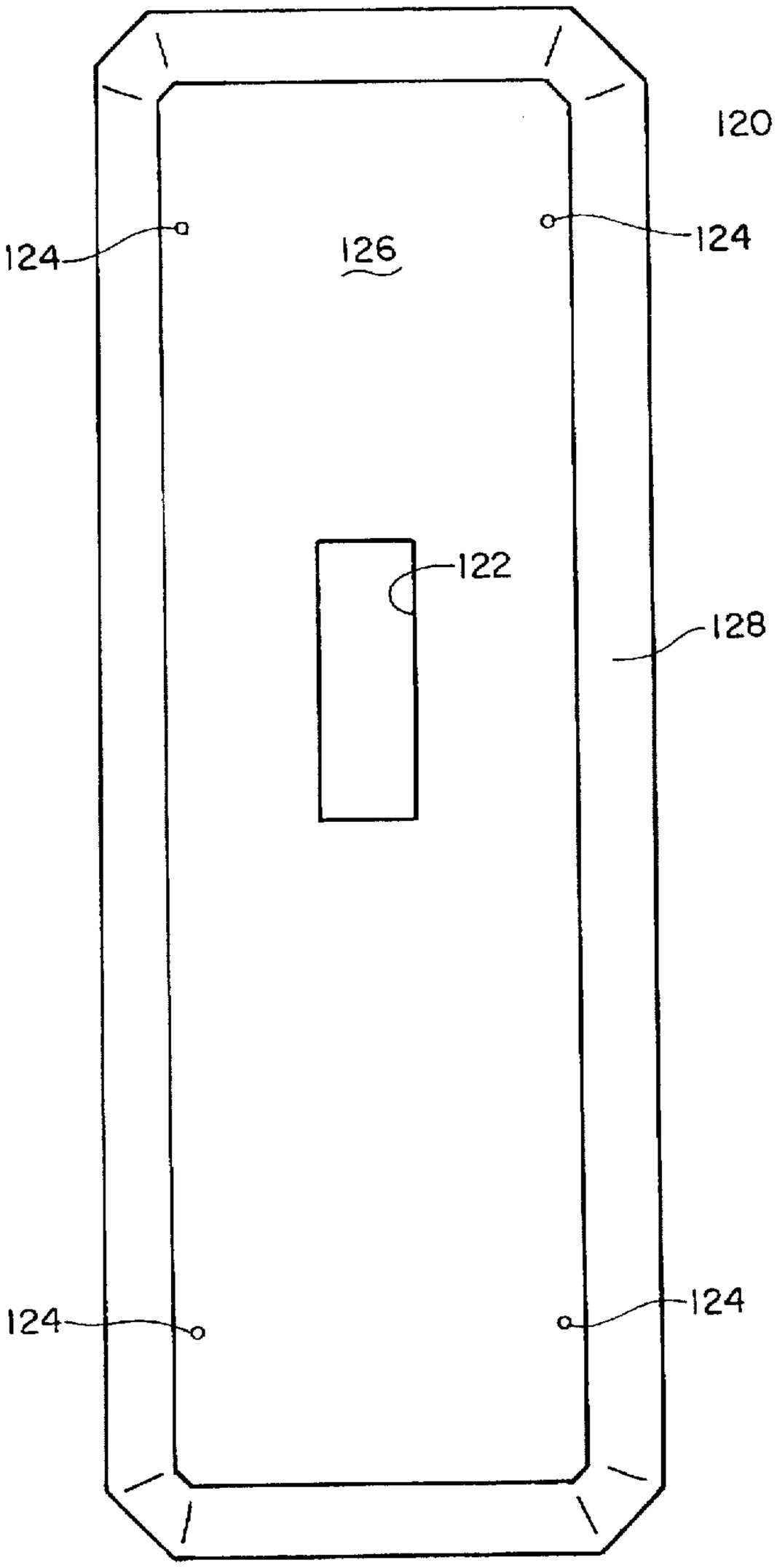
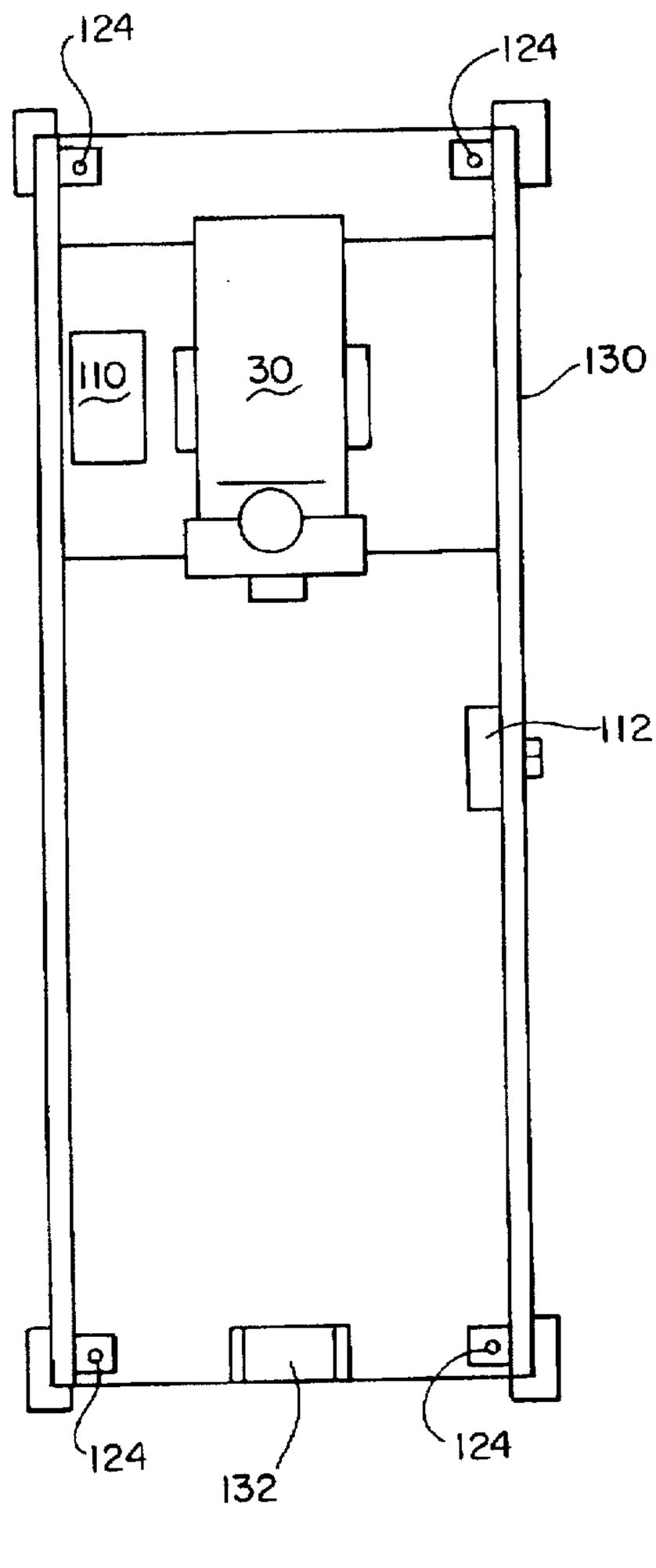

120
124
126
124
122
128
124
124

Fig.13


124
124
110
30
130
112
124
132
124

HYDRO-MASSAGE TABLE

This is a continuation-in-part application, filed under 37 CFR 1.53, of Ser. No. 08/147,962, filed Nov. 4, 1993, now U.S. Pat. No. 5,514,078, issued May 7, 1996.

BACKGROUND

This invention relates to massage tables and is particularly concerned with spinal massage tables of the type where motion in a fluid-filled bladder is transmitted to the user's body. The invention is particularly concerned with novel fluid distributors and means for stabilizing fluid temperature within the massage table.

It is known that a large portion of the population experiences health problems associated with bad backs. Currently their recourse is to undergo surgery, seek chiropractic assistance or massage therapy on a regular basis, or live with the pain. One means to alleviate this pain has been the use of massage tables, usually in the chiropractic setting.

Massage tables having a fluid-filled bladder or bladders within a cabinet, or table, are known, see U.S. Pat. No. 5,074,286, Gillaspie et al. Pulsating motion is made by circulating a fluid, mainly water, through a series of jets within a waterbed-type bladder. Present practice includes the use of pistons, pumps, sonic means, etc. to introduce pulsating motion into the fluid within the bladder, the fluid transmitting the pulsating motion to the surface of the bladder where it can affect the user.

Hydrotherapy baths also have been used putting the user in direct contact with pulsation fluid. These include whirlpool baths and spas.

A shortcoming of the current practice is that the units are designed for institutional use and as a result are physically large and heavy and prohibitively expensive for the individual to purchase for home use. Recently, whirlpool baths and spas have been designed for home use but still require large initial expenditure including addition of a room for installation of the whirlpool bath or spa in the home and cost of transporting baths and spas from the manufacturer to the ultimate consumer. Also, hydrotherapy baths require preparation time both before and after use on the part of the user.

An additional shortcoming in the current practice has been the inability to recreate the effect of manual massage by mechanical means. Gear-driven jets have been found to need repair after being impacted directly by the user.

A further shortcoming of the current practice has been the difficulty and expense associated with stabilizing the fluid temperature in such a device. It has been a problem to economically dissipate excess heat produced by the circulating pump.

A further shortcoming has been the inability to control the amount of fluid circulating through the bladder to allow the user to change the strength of the pulsating motion.

A further shortcoming has been the noise associated with the fluid circulating through the pump and related tubing.

For the foregoing reasons, there is a need for a massage table that can be produced and installed for quiet home use, that because of two-piece construction, can be easily and economically shipped, that provides a fluid distributor for variable pulsating action that more closely resembles manual massage treatments, that allows the user to individually select the strength of pulsating action and provides means for economically stabilizing the fluid temperature within the unit.

SUMMARY

The present invention is directed to a pulsating hydro-massage table that satisfies these needs. A massage table is

provided having a fluid-filled bladder, means for supporting the bladder, inlet and outlet tubing means for circulating the fluid within the bladder, a pump for circulating the fluid through the bladder, means for re-circulating fluid from the bladder through the pump, and at least one jet-free, gear-free fluid distributor, having input and output openings of a same size, mounted for rotatable motion on the tubing means within the bladder, the jet-free, gear-free fluid distributor rotating in response to passage of fluid therethrough, for providing dual pulsating motion of the fluid to the user.

A massage table having a jet-free, gear-free fluid distributor having a nozzle of hollow tubular construction, with a fluid inlet and outlet openings of a same size, the nozzle rotating about a vertical X axis defined by the center of said nozzle upon the tubing, the nozzle inlet position to receive fluid flowing into the nozzle and directing the fluid flow from the vertical to horizontal, the nozzle outlet imparting directional flow at an angle approximately 60° from vertical for providing a first pulse toward an upper surface of the bladder.

A massage table having a jet-free, gear-free distributor having a blade fixedly attached to and extending laterally from the nozzle, the blade following the nozzle powered by the nozzle rotation, the rotating blade adapted to deflect the water bath in a generally vertical direction providing a second pulse.

A massage table having a S-shaped coupling in fluid communication between the bladder and the pump for re-circulating fluid therethrough.

A massage table having a temperature stabilizer with a configuration of tubing, on which are mounted a plurality of fins, and a blower is further provided for blowing on the finned tubing conducting heat away from the fluid circulating through the finned tubing. S-shaped coupling, in fluid communication between the temperature stabilizer and the pump, provided for drawing fluid out of the temperature stabilizer and into pump eliminating any need for a second pump, lessening any noise associated with operation of the massage table.

A second embodiment having a massage table with the table of two-piece construction for ease of transport allowing economic transport of the massage table to the ultimate consumer.

An important advantage of an embodiment of the present invention is the addition of a novel fluid distributor. The distributor consists of a nozzle having an opening at one end for the passage of fluid therethrough providing a first pulse. Associated with the nozzle is a blade which is fixedly attached, in a generally parallel plane, to the nozzle. This inverted C-shaped blade catches the fluid sending it upward as a second pulse. The blade acts as a counter-balance to the nozzle increasing the stability of the nozzle in position atop the fluid distributor. Additionally, the blade acts as a brake to the rotating nozzle. Because of the proximity of the distributor to the upper edge of the bladder, both the first pulse, caused by the fluid exiting the nozzle, and the second pulse, caused by the interaction of the blade with the surrounding fluid, is tactually experienced by the massage table user. An embodiment of this invention provides the user with a dual-pulsating massage effect that will penetrate a muscle mass in a very compact table.

Another advantage of an embodiment of this invention is the temperature stabilizing feature. Continuous use of the pump can add heat to the fluid circulating therethrough. The heat dissipator can be used to dissipate the heat so generated.

A further advantage is the tactual stimulation the user perceives upon use of a massage table with the embodiments

of the present invention. This stimulation closely resembles the tactual stimulation received from manual massage. This is an important advantage for people suffering from chronic back pain.

A further advantage is the noise reduction gained by the use of the novel tubing connection by which fluid is circulated through the temperature stabilizer. This allows one pump to circulate the fluid throughout the system, including through the temperature stabilizer.

Variable massage pressures are achieved by use of a solenoid-activated bypass valve which, when open, causes fluid to bypass being sent into the bladder. Additional solenoid activated valves and associated bypass tubing can be added to further reduce fluid flow within the bladder. This variable massage pressures re-create the sensation of manual massage to the user, an important advantage to those suffering from chronic back pain.

An additional advantage of the second embodiment of the present invention is that a massage table with these embodiments is provided where the table support is of two-piece construction and is small enough that it does not require a room of its own, is light weight so that no structural considerations need be made and therefore, is appropriate for home use. Also, because it is more economically produced and transported to the ultimate consumer, increased numbers of people are able to purchase such a device for home use.

BRIEF DESCRIPTION OF THE DRAWINGS

Understanding of the invention will be enhanced by referring to the accompanying drawing, in which like numbers refer to like parts in the several views and in which:

FIG. **1** is a side view of a massage table for use with embodiments made in accordance with the invention;

FIG. **2** is an end view of the massage table of FIG. **1**;

FIG. **3** is a top plan view of the massage table of FIG. **1**;

FIG. **4** is a bottom plan view of FIG. **1**;

FIG. **5** is a schematic side view of the invention of FIG. **1**, with portions broken away for ease of understanding;

FIG. **6** is an enlargement of the bottom plan view of FIG. **4**, indicating the configuration of elements below the bladder;

FIG. **7** is a fluid distributor made in accordance with the invention;

FIG. **8** is an exploded view of the fluid distributor of FIG. **7**;

FIG. **9** is a side view of the fluid distributor of FIG. **7**;

FIG. **10** is a front view is a of the temperature stabilizer, made in accordance with the invention;

FIG. **11** is a cross-sectional top plan view, taken along the lines **10**—**10** of FIG. **10**, of the temperature stabilizer of FIG. **10** with portions broken away for ease of understanding;

FIG. **12** is a top plan view of the second embodiment of the invention; and

FIG. **13** is a bottom plan view of the second embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Understanding of the invention will be further enhanced by referring to the following illustrative but nonlimiting examples. Conventional tubing and couplings are included in this description generally have not been identified. Where important for understanding the invention, conventional tubing and couplings have been identified.

Definitions. A jet has an input opening larger than that of the output opening thereby creating additional force in the outgoing fluid, air, or the like, passing there-through. The fluid distributor of the present invention has an input opening and an output opening of similar size.

Massage tables **20**, like the one shown generally at FIG. **1**, have a fluid-filled bladder **24**, the fluid generally being water, and means for circulating the fluid throughout the bladder **24**. A pulse is introduced into the fluid-filled bladder **24** by means of circulating fluid through a pump **30** FIGS. **4**, **5**, **6**, **13** and then into the fluid-filled bladder **24**. A circulating pump **30**, like that associated with swimming pools, whirlpool baths, spas and the like, pushes fluid through a nozzle, or the like, creating a pulse which is tactually perceivable by the user when laying the user's body on the massage table **20**.

An embodiment of the present invention utilizes a jet-free fluid distributor **40**, in place of a jet, to introduce a pulse into the fluid held by the bladder **24** within a massage table **20** FIGS. **5**, **7**,**8**, **9**. Because of the novel design of the fluid distributor **40**, two pulses are created by a single rotation of the fluid distributor nozzle **42**. The placement of the fluid distributor **40** in close proximity to the upper surface **26** of the bladder **24**, shown at FIG. **5**, allows both pulses to be tactually perceived by the user. The addition of a solenoid-activated valve **50** varies the pressure of the pulses. The valve **50** can be activated, opening the valve, not shown, allowing fluid to bypass the bladder **24** thereby reducing the pressure of the pulse within the bladder **24**. The addition of a temperature stabilizer **90** FIGS. **4**, **5**, **6**, **10** & **11** is used to dissipate excess heat created by continuous use of the pump **30**. The temperature stabilizer **90** contains an array of copper tubing **94** with the addition of a plurality of aluminum fins **96** mounted thereon. A blower **98** is used to circulate air between the array of finned tubing **94** cooling the fluid held therein. In actual use conditions, four vertical arrays of tubing **94'**, **94"**, **94'"**, **94'""**, have been utilized and three horizontal layers **92**, **92'**, and **92"** have been utilized although other configurations could be used to reduce the heat produced by the continuous use of the circulating pump **30** FIGS. **10** & **11**. Copper tubing has been used in actual use conditions although other types of tubing, ex. plastic, PVC, etc. could be used.

The massage table **20** with embodiments of the present invention utilizes a fluid-filled bladder **24** similar to that used in conventional waterbeds but of smaller dimensions than that used in previous massage tables. U.S. Pat. No. 4,635,620, Ricchio, for instance provides for a waterbed that holds 160 gallons of fluid. The present invention provides a bladder **24** that holds a range of between 10 and 25 gallons of fluid. In actual use conditions, a bladder holding about 22 gallons has been utilized with best results. This allows the individual consumer to purchase such a massage table for home use.

Having a smaller bladder means the unit weighs less when in use and fluid-filled. The cabinet **18** supporting the bladder **24** is smaller than currently used cabinets. This smaller size and reduced weight provides a massage table adaptable for a home environment. Structural changes to the home are not required prior to home use of this embodiment of the present invention.

The bladder **24** is smaller because it is used to support and massage only the upper torso of the user, not shown. The

lower torso, including the buttocks and legs, are supported by the frame **22** of the cabinet **18**. For comfort, foam padding **28** has been added, and can be varied in thickness as needed.

In actual use conditions, the cabinet **18** for supporting the bladder **24** is made of plywood although other low-cost, resilient, easily cut materials can be used. The first end **16** of the cabinet **18**, the end where the user's feet would be placed when the massage table is in use, is lower for easy access, illustrated by broken line at FIG **1**. This feature allows the user to ascend and descend the massage table with ease. In actual use conditions, a 1 inch difference between the highest edge **17**, and the first end **16**, or lowest edge of the cabinet, has been used with best results.

A second embodiment, which when assembled has the same appearance as the first embodiment, is shown at FIGS. **1–13**. This second embodiment provides a cabinet **18** of two-piece construction allowing shipping of the top portion **120**, which can include the jet-free, gear-free fluid distributors **40** bladder **24**, supply tubing **38**, and S-shaped coupling **80** of the first embodiment. The bottom portion **130** is shipped separately from the top portion **120**, having the pump **30**, although any combination of parts may be transported with the top and bottom portions. Housing for a thermostat **132** is shown in FIG. **13**. The point is to be able to ship in at least two boxes to enable shipping by economic means. At the point of use, the user may assemble the two-piece table attaching the top to the bottom portion by the use of nuts and bolts, screws, or other fastening means **124**. Opening **122**, formed within support **126** provides access into the top portion for the installation of the pump **30** and supply tubing **38** which may be installed within bladder **24**. The pump **30** and S-shaped coupling **80** project through opening **122** to be attached to supply tubing **38**. Attached to support **126** is edging **128**.

The fluid distributor **40** of the present invention, shown in detail at FIGS. **7,8,9** consists of a nozzle **42** configured in an S-shape, having inlet **44** and outlet **46** for passage of the fluid therethrough. In actual use conditions, two 90° elbow PVC tubings are positioned and adhered together to provide a the S-shaped nozzle **42** with the outlet **46** at about 60° from the vertical plane, as shown at FIG. **9**. Extending in a downward direction from the nozzle **42** is a stem **48** FIG. **8**, also of PVC tubing and having an inlet **44** of a diameter the same as the inside diameter of the outlet tube **46**. Other materials, such as metal, could be used in place of PVC tubing. This stem **48** provides the pivot about which the fluid distributor **40** rotates once positioned on a coupling **36** attached to the supply tubing **38**. The stem **48** carries a nylon bearing **52** which fits around the stem **48** and allows free rotation of the stem **48** within the bearing **52**. Other material can be used or some form of roller bearing could be used as a means to reduce friction and wear at this stem **48**. A PVC bushing **54** is mounted over the nylon bearing **52**, surrounding the stem **48**, increasing the stability of the fluid distributor **40** during rotation. A pair of Teflon® washers **56,58** are provided, the first washer **56** fitting loosely on the stem **48** allowing free rotation of the stem **48** and associated fluid distributor **40** within the bushing **54**, the second washer **58** fitting tightly on the stem **48** providing a barrier to the surrounding fluid while rotating freely with the rotating stem **48**. The Teflon® washers **56,58** abut each other, one rotating and the other staying stationary. Any friction therebetween is reduced because of the composition of the washers themselves. This stem-surrounding assembly **34** is retained in place on the stem **48** by means of a retainer clip **60**, or spring, which fits into a groove **62** formed into the surface of the stem **48**.

Extending laterally from the nozzle **42** is a blade **64** of inverted C-shaped configuration. This blade **64** acts as a wing catching and deflecting the surrounding fluid. Because the bottom edge **66** of the C-shape extends to a vertical axis, shown in phantom at FIG. **9**, and the upper edge **68** of the C-shape does not extend to the vertical axis, the fluid so deflected is pushed by the blade **64** in an upward direction.

The fluid escaping from the nozzle **42** proceeds outwardly at the about 60° angle and is deflected upwardly by the surrounding fluid. The close proximity of the upper surface **26** of the bladder **24** provides immediate downward thrust that strikes the blade **64** and is deflected upwardly by the turning blade **64**. The combination of this pulsing of the fluid upwardly, downwardly and upwardly again provides the unique massage sensation to the user.

In actual use conditions, three fluid distributors **40,40',40"** are provided for mounting along a supply tubing **38** held within the fluid-filled bladder **24**. This supply tubing **38** is generally parallel to the spine of the user when positioned for use, not shown. The fluid distributor **40"** furthest away from the pump **30** is one inch closer to the upper surface **26** of the bladder **24** than is the fluid distributor **40** closest to the pump **30**. The middle fluid distributor **40'** is intermediate in height between these two end fluid distributors **40, 40"**. A problem with the current practice has been the fragility of the jets or nozzles. U.S. Pat. No. 5,074,286, Gillaspie utilizes a gear-driven jet. If this gear-driven jet is impacted, for instance the user lies on it, the gear is damaged. For that purpose, the jets, etc. were positioned far away from the user's body. The present embodiment of this invention provides a jet-free, gear-free fluid distributor **40** that resists deformation caused by direct contact between the user's body and the distributor. This allows the positioning of the fluid distributor **40** in closer proximity to the body of the user, increasing tactual perception of the user of both pulsations caused by a single rotation of this fluid distributor **40**. In actual use conditions, the fluid distributors **40,40',40"**, rotate independently of each other contributing to the unique massage sensation perceived by the user.

Additionally, Gillaspie must have a distance between the jets and the user's body to create the pushing and pulling upon the user's body, or "traction". To attain this traction, the fluid flowing from the jets must overlap. Also, the jets of Gillaspie rotate slowly, about 10 to 15 revolutions per minute, whereas in this embodiment of the present invention, the fluid distributors rotate approximately 200 times per minute. This speed of rotation contributes to the unique massage effect attained by use of the fluid distributors of the present invention.

The pump **30** is operated at full speed. Pressure can be reduced by means of a bypass installed "upstream" of the fluid distributor. A solenoid-activated valve **50**, of the type used in automatic lawn sprinklers, is used to control the volume of fluid being pulsed throughout the bladder **24**. When the solenoid-activated valve **50** opens, it provides an alternate route for the fluid to pass through rather than flowing into the bladder **24**. As shown in FIG. **6**, the solenoid-activated valve **50** is connected by tubing at a first end **51** to the fluid flowing out from the pump **30** towards the bladder **24**. This fluid may be diverted into the temperature stabilizer **90** for dissipation of excess heat.

When a massage table **20** having the embodiments of the present invention is continuously used, heat, generated from use of the circulating pump **30**, can increase the temperature of the circulating fluid above desirable limits. Heat is created by friction when a fluid is pressurized and forced through

tubing. To prevent this heat from accumulating, a temperature stabilizer **90** can be added to the massage table **20**. This temperature stabilizer **90** consists of at least one layer **92** of copper tubing **94** with aluminum fins **96** stacked along the length of the tubing **94**, shown at FIG. **11**. Because when air is passed over a finned tube filled with fluid of a higher temperature, a specific amount of hear from the higher temperature fluid will be transferred in the air temperature creating a cooling effect on the fluid. The greater difference between the air temperature and the fluid temperature, the higher number of degrees can be removed from the fluid. The present temperature stabilizer is designed to maintain the greatest amount of differential between the air temperature and the fluid temperature. In actual use conditions, an air differential of 24° F. has been achieved using the temperature stabilized of the present invention. By using a series of finned tubes and air chambers, the air flow may be used to greatest efficiency.

When the user does not use the massage table on a continuous basis, for example an individual at home, having a temperature stabilizer is less important. Particularly the second embodiment, designed to be shipped in at least two packages for economical shipping, also allows the home user to assemble and install the massage table easily.

These copper tubes **94** are connected using 90° elbows and tubing. The tubing **94** is arranged so the fluid enters the lower front tube **94A** and exits from the upper rear finned tube **94B**. This allows for total drainage for shipping in cold weather. The finned tubes **94** are enclosed in a container with sealed ends, bottom and top. The rear panel **104** has an opening **114** to accept an air blower **98**, shown in FIG. **11**, of sufficient size to provide the cubic feet of air required to cool the finned tubes. The front panel **106** has an opening **114** sized to allow air flow through a complete stack of finned tubes. On each end of the tubes, a dense foam **108** is used to block air from flowing around the ends rather than through the fins **96** on the tubes **94**. There is a space **116** where the air enters the rear from the blower **98** and the first stack of finned tubes **94'**, allowing the air to distribute more evenly before passing through the first stack of finned tubes **94'**. This is repeated between each stack of tubes, in actual use conditions, three additional courses of finned tubing **94"**, **94'"**, **94""** are used although greater or lesser numbers of courses of finned tubing could be used, to allow for the most efficient manner of using the air flow for cooling. Additionally, once the air has passed through the stabilizer **90**, the air is expelled into the pump **30** chamber where the passage of air over and around the pump **30** helps to cool the pump **30**. Without this feature, the pump **30** would overheat during continuous operation.

In one embodiment of the present invention, three layers **92,92',92"** of finned tubing are used. In actual use conditions, each layer **92**, has four courses of finned tubing **94'**, **94"**, **94'"**, and **94""**, and these finned tubings **94** are positioned to maintain a space **102** between the courses of finned tubing **94**, although greater or lesser numbers of finned tubing layers could be used so long as the desired temperature may be maintained. The fins **96** of one layer **92** abut the fins **96** of an adjoining layer **92'**, as shown at FIG. **10**. A blower **98** can be mounted in a housing **99** within the massage table cabinet for directing blown air across these finned tubes **94**, as shown at FIG. **11**.

Fluid, diverted from circulating through the pump **30**, flows into the temperature stabilizer **90**. Because the tubing leads from the bottom of a chamber **74** between the bladder **24** and the pump **30**, the chamber **74** being of greater diameter than the tubing immediately before the pump **30**, the fluid escapes the pump **30** by flowing downwardly from the chamber **74** and away from the pump **30**. After the fluid has been circulated through the temperature stabilizer **90**, the fluid flow away from the temperature stabilizer **90** is aided by the creation of a vacuum within a nipple **76**, shown in detail at FIG. **6**, by which the fluid flows from the temperature stabilizer **90** into the pump **30**. Fluid flowing around the nipple **76** on its way from the chamber **74** into the pump **30** creates this vacuum pulling the fluid from the temperature stabilizer **90**. This eliminates the need for a second pump to achieve fluid flow from the temperature stabilizer **90** to the pump **30**, and further reduces noise of operation. The temperature stabilizer **90** solves the previous problem of over-heating of fluid in a bladder-containing massage table.

In use, the pump **30** circulates fluid through tubing extending into a fluid-fillable bladder **24**. Drain fittings **32,32'**, like those used in swimming pools and whirlpool baths, etc. are used to provide a water-tight connection at the point of entry of the tubing into the bladder, drain fitting **32** connecting tubing leading to the bladder **24** from the pump **30**, drain fitting **32'** connecting the bladder **24** to tubing leading back to the pump.

After the bladder **24** is filled with fluid, the fluid circulates from the pump **30** through conventional tubing to the supply tubing **38** for flow out the fluid distributors **40,40',40"** into the bladder **24**. The fluid is forced through the tubing by the pump **30** pushing the fluid. Movement of the fluid out the fluid distributor **40,40',40"** causes it to rotate about its pivot creating a pulse of fluid that is forced upwardly from the fluid distributor outlet **46**. A second pulse of fluid is created by action of the blade **64** pushing against the surrounding fluid as the fluid distributor **40,40',40"** rotates. This pulse is directed in an upwardly direction because countering fluid forces surrounding the fluid distributor **40,40',40"** forces the fluid flowing out from the fluid distributor **40,40',40"** upwards to the area of least resistance, namely, the area near the upper surface **26** of the bladder **24**. The dual-pulsing action more closely re-creates the sensation of a manual massage to the user.

The blade **64** also serves as a brake creating resistance to slow the rotation of the nozzle **42**. If the nozzle were to rotate too quickly, say approximately 220 revolutions per minute, then the pulse created by the fluid leaving the nozzle would tactually be perceived as a steady stream. The sensation of a pulsating action is desired to re-create the effect of a manual massage.

The fluid re-enters the tubing at an outlet formed in a second drain fitting **32'**. The fluid flows from the bladder **24** into a chamber **74**, through an S-shaped coupling **70** and back into the pump **30**. Fluid can be diverted from this normal circulation pattern by forming an aperture **82** in the bottom wall of the chamber **74** for fluid flow towards the temperature stabilizer **90**, as shown at FIG. **6**. Within the temperature stabilizer **90**, the fluid flows through a series of finned tubing **94** arrayed in layers **92**. After the fluid flows for cooling through the temperature stabilizer **90**, the fluid is pulled, or sucked, out of the temperature stabilizer **90** by action of a vacuum created by the normal flow of fluid through the S-shaped coupling **80** between the chamber **74** and the pump **30**. This vacuum is created by fluid flowing past a nipple **76**. The fluid from the temperature stabilizer **90** is pulled out the nipple **76** and into the main stream of fluid flow into the pump **30**.

A rocker switch on a control panel **112**, can control the activation of a solenoid-activated valve **50**, or valves, that divert flow from the main stream of flowing fluid. This

diverts the flow from entering the distributor **40**. Therefore, the pulses created by the flow of the fluid through the tubing and out the fluid distributor **40,40',40"** are lessened. It is important to note that there is a constant amount of fluid in the bladder. Diverting flow from the distributor **40** does not result in less fluid in the bladder. This is possible because as fluid is pushed out of the distributor **40,40',40"**, an equal amount of fluid leaves the bladder **24** by way of the second drain fitting **32'**. Use of the unit without diverting fluid flow through solenoid-activated valve **50** means fluid leaves the fluid distributor **40,40',40"** at full power. Use of one solenoid-activated valve **50** reduces the pressure exerted by the pulse as it flows out the fluid distributor **40,40',40"**. Use of more than one solenoid-activated valves reduces the pressure further.

The pump **30** is mounted within the cabinet **18** by means of a pump mount **31**. Electrical means **110** are mounted also within the cabinet **18** for powering the pump **30**, the blower **90**, and the solenoid-activated valve **50**. Main power is conveyed to the electrical means at **110'**, shown in detail at FIG. **6**. Elements **30'**, **90'**, **50'**, and **112'** are means by which power is conveyed to the pump **30**, temperature stabilizer **90**, solenoid actuated valve **50**, and control panel **112**, respectively.

The previously described versions of the present invention have many advantages including the home-use feature of the present invention. Use of these embodiments of the invention in a massage table, because of the reduced weight and size of the unit in comparison with other versions of massage tables, is designed for home use. The small size, especially when packaged in two pieces, allows installation of the unit wherever the user has wall space with a nearby electrical outlet. No additional plumbing is required for installation of this embodiment. The user treats the massage table **20** with the present embodiments as an additional piece of furniture when planning installation of such a massage table **20** into an existing room. Because of the unit's light weight, no structural considerations need be made and therefore, is appropriate for home use. Also, because it is more economically produced, increased numbers of people are able to purchase such a device for home use.

An important advantage of the present invention is the addition of a novel jet-free, gear-free fluid distributor **40**. The distributor **40** consists of a nozzle **42** having an opening **44,46** at two ends for the passage of fluid there-through. Associated with the nozzle **42** is a blade **64** which is fixedly attached, on a generally parallel plane, to the nozzle **42**. This inverted C-shaped blade **64** catches the fluid and acts as a brake to the rotating nozzle **42**, counter-balancing the nozzle **42** on the bushing **54** which receives the fluid distributor **40** for mounting. Additionally, use of the blade **64** introduces an second pulse into the fluid. Because of the proximity of the distributor **40** to the upper edge of the bladder **24**, this second pulse is tactually experienced by the massage table user.

Another advantage of the embodiment of this invention is the temperature stabilizing feature. The continuous use of the pump **30** can add heat to the fluid circulating there-through. The temperature stabilizer **90** can be used to dissipate the heat so generated.

The creation of a vacuum by flowing fluid past a nipple **76** causes an vacuum to be created within the nipple **76**, sucking out the fluid from the temperature stabilizer **90** increasing the quietness of operation of the massage table with the present embodiments.

The variable massage pressures are achieved by use of a solenoid-activated bypass valve **50** which, when open, causes fluid to bypass being sent to the bladder **24**. Additional solenoid activated values and associated bypass tubing can be added.

A waterbed-type heater, not shown, can be added to warm the fluid to a comfortable temperature. Additionally, a timer can be added to preset the duration of the massage generated by the table. Casters could be added to the legs **14** of the cabinet **18** to allow ease of transport of a massage table utilizing embodiments of the present invention within a home. A control panel **112** could be added to accommodate use of one or more than one solenoid-activated valves **50** to enable the user to have a "high, medium, low" fluid control capabilities.

What is claimed is:

1. A massage table comprising:

a) a bladder adapted for containing fluid;

b) tubing means retained within the bladder and adapted for circulating fluid;

c) a pump positioned adjacent said bladder and adapted for pressurizing fluid within said tubing means;

d) a jet-free and gear-free fluid distributor, mounted for rotatable motion on said tubing means, adapted for providing a dual pulsating fluid motion in a desired direction, said fluid distributor having input and output openings of a same size; and

e) fluid re-circulating means adapted for re-circulating fluid from said bladder into said pump for re-circulation of fluid through said tubing means.

2. The massage table of claim **1**, further comprising a table of two-piece construction for providing economic transport and ease of installation and assembly of such a massage table.

3. The massage table of claim **1**, wherein said jet-free, gear-free fluid distributor further comprises a nozzle of hollow tubular construction, having an inlet and an outlet of a same size, the nozzle rotating about a vertical X axis defined by the center of said nozzle in position upon said tubing means in response to flow of fluid therethrough, the nozzle inlet positioned upon said tubing means to receive fluid flowing in a generally vertical direction, said nozzle further comprising a channel for directing fluid flow from the vertical to horizontal, said nozzle outlet imparting directional flow at approximately 60° from vertical, for providing a first pulse toward an upper surface of the bladder.

4. The massage table of claim **3**, wherein said jet-free, gear-free fluid distributor, further comprises a blade fixedly attached to and extending laterally from the nozzle, the blade following the nozzle and is powered by the nozzle rotation, the rotating blade adapted to deflect the water bath in a generally vertical direction providing a second pulse.

5. The massage table of claim **4**, wherein said fluid re-circulating means further comprises an S-shaped coupling mounted in fluid communication between said bladder and said pump.

6. The massage table of claim **5**, further comprising:

a) a temperature stabilizer having an array of finned tubing and adapted for fluid circulation therethrough and a blower for blowing ambient air over the finned tubing for conducting heat away from said array of finned tubing; and

b) second tubing means interconnecting said bladder and said temperature stabilizer, adapted for providing fluid communication between said bladder and said temperature stabilizer.

7. The massage table of claim **6**, wherein said S-shaped coupling, mounted in fluid communication between bladder

and said pump has means for causing a vacuum within said S-shaped coupling for drawing fluid out of said temperature stabilizer and into said pump eliminating any need for a second pump, lessening the noise associated with operation of such a massage table.

8. A massage table of two-piece construction, comprising:

a) a bladder adapted for containing fluid;

b) tubing means retained within the bladder and adapted for circulating fluid;

c) one pump positioned adjacent said bladder and adapted for pressurizing fluid within said tubing means;

d) a jet-free and gear-free fluid distributor, mounted for rotatable motion on said tubing means, adapted for providing a dual pulsating fluid motion in a desired direction, said fluid distributor having input and output openings of a same size; and

e) fluid re-circulating means having an S-shaped coupling in fluid communication with said bladder and said pump, adapted for re-circulating fluid from said bladder into said tubing means, for re-circulation of fluid through said tubing means without the addition of a second pump.

9. In a massage table having a fluid-filled bladder, means for supporting the bladder, inlet and outlet tubing means for circulating the fluid within the bladder, and a pump for circulating the fluid through the bladder, wherein the improvement comprises:

a) at least one jet-free, gear-free fluid distributor, mounted for rotatable motion on the tubing means within the bladder, the jet-free, gear-free fluid distributor rotating in response to passage of fluid there-through, and having a blade follower attached and extending laterally from the jet-free, gear-free fluid distributor, for providing dual pulsating motion of the fluid to the user; and

b) a support means of two-piece construction for ease of economic transport of said massage table.

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